

**ABSTRACT OF THE DISCLOSURE**

Electrodes for a fluorine gas discharge laser are disclosed which may comprise a crown straddling the centerline axis between the pair of side walls and the pair of end walls, comprising a first material, forming at least a portion of the discharge region of the electrode; the crown in traverse cross section having the shape of the upper half of a canted ellipse rotated in the preionizer direction, such that a tangent to the short centerline axis of the ellipse forms an angle with the horizontal. Another embodiment may comprise an anode blade having a top portion and a first and second sidewall portion each intersecting the top portion; the anode blade being formed with the shape in cross section of the top portion being curvilinear and intersecting the generally straight portions of each of first and second sidewall portions along a radius of curvature and with the top portion beveled away from an asymmetric discharge side of the anode. Another embodiment may comprise an anode and an up-stream fairing each composed of electrically conductive material, at least the discharge receiving portion of which is coated with a thin dielectric layer, e.g. is anodized. Another embodiment may comprise at least a portion of the discharge region of a gas discharge electrode is covered with a pre-formed reef having generally uniform pore size and distribution. A method is disclosed for reef making which may comprise forming the reef of a vacuum infiltrated porous anodized material. another disclosed method may comprise forming a first anodization layer on the surface of the electrode at least in the discharge region; removing the anodization layer; forming a second anodization layer on the surface of the electrode at least in the discharge region; which may be followed by widening the pores in the second anodization layer, thinning the second anodization layer; and filling the pores with a conductive material. A further method may comprise forming a reef template on at least the discharge region of the elongated gas discharge region; selectively growing a porous layer of insulating material as dictated by the reef template, and may further comprise a positive template or a negative template.